

REMARKS

Claims 1-18 are pending in the present Application. Claims 2, 5, and 12 have been amended to place them in independent form, Claims 19 – 21 have been added, and Claims 14-18 have been cancelled without prejudice, leaving Claims 1-13 and 19 – 21 for consideration upon entry of the present Amendment.

Claims 2, 5, and 12 have merely been amended to place them in independent form.

Claims 19 – 21 have been added to further claim the present invention. Support for these new claims can at least be found in the claims as originally filed.

No new matter has been added by these amendments or new claims. Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

Elections/Restrictions

The Examiner contends that: Group I, Claims 1-13 drawn to a process, classified in Class 562, subclass 847; and Group II, Claims 14-18, drawn to an apparatus, classified in Class 422, subclass 168+. Applicants hereby confirm the election to prosecute Group I. This election was made without prejudice to Applicants' rights with respect to Claims 14-18, Group II, including the right to file divisional application(s) thereon.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1, 7-11 and 13 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. EP 1,112,997 A2 in view of U.S. Patent No. 4,039,619. Applicants respectfully traverse this rejection.

The Examiner concedes that EP '997 fails to disclose "the exact sorbent agent" and therefore he relies on Steiner to teach a metal oxide impregnated activated carbon. (Office Action dated June 20, 2006, hereinafter "OA 06/06", pages 2 – 3);

The Examiner contends that EP '997 teaches "treating CO to remove sulfur [and] then reacting it to make phosgene" (OA 06/06, page 2); however, in actuality, EP '997 specifically teaches "a Claus catalyst column [] to hydrolyze COS and carbon disulfide contained as impurities" into hydrogen sulfide to produce a gas containing 1,690 ppm hydrogen sulfide. (page 8, lines 20-23) Furthermore, EP '997 teaches "the carbon monoxide gas containing carbon

dioxide and hydrogen sulfide is purified by passing through a decarbonation and desulfurization column to remove carbon dioxide and hydrogen sulfide therefrom using sodium hydroxide.” (page 7, lines 49-55) EP ‘997 teaches contacting the gas with “an aqueous potassium carbonate solution by counter-flow method to decarbonate and desulfurize the gas.” (Page 8, lines 19-25) EP ‘997 fails to teach “introducing a carbon monoxide stream to a metal oxide impregnated activated carbon” and “reducing a hydrogen sulfide concentration to produce a cleaned stream” as claimed by applicants.

The Examiner contends that “using the getter of Steiner in the process of ‘997 is an obvious expedient to purify the CO to the desired purity to avoid side-reactions.” (OA 06/06, page 3). “Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, No. 04-1616 (CAFC March 22, 2006) citing *In re Lee*, 277 F.3d 1338, 1343-46 (Fed. Cir. 2002); and *In re Rouffett*, 149 F.3d 1350, 1355-59 (Fed. Cir. 1998). “When the [Examiner] does not explain the motivation, or the suggestion or teaching, that would have led the skilled artisan at the time of the invention to the claimed combination as a whole, [it is] infer[ed] that the [Examiner] used hindsight to conclude that the invention was obvious.” *Id.*

Here the Examiner relies on a merely conclusory statement as motivation to change the process of EP ‘997 and use the process of Steiner, i.e. “using the getter of Steiner in the process of ‘997 is an obvious expedient to purify the CO to the desired purity to avoid side-reactions.” However, the process disclosed in ‘997 teaches a specific purification process which simultaneously decarbonates and desulfurizes the gas stream in a single column using an aqueous potassium carbonate solution. (Page 8, lines 23-25) There is no motivation for an artisan to use the nickel-containing material disclosed in Steiner as an “expedient” for the process disclosed in ‘997 since it would require additional purification step(s), i.e. desulfurization using nickel and then decarbonation in a column, as opposed to the single decarbonation and desulfurization column claimed by EP ‘997. Additionally, there is no teaching or expectation of success that the nickel-containing material of Steiner would both decarbonate and desulfurize. It appears that combining Steiner with EP ‘997 would add an additional step to EP ‘997; not expedite the

process of EP '997. Therefore, there is no motivation and as such, no *prima facie* case of obviousness has been established.

Furthermore, when taken as a whole, Steiner requires "...contacting such mixture in a reaction or desulfurizing zone at an elevated temperature" (Abstract). Specifically, Steiner requires temperatures of 1,000°F to 1,450°F (538°C to 788°C). (Col. 2, lines 52-55) In contrast, EP '997 teaches purification temperatures of the product gas after treatment in the Claus catalyst column of 250°C (482°C) and after treatment in the decarbonation and desulfurization column of 60°C (140°C). The temperatures taught by EP '997 are significantly lower than those taught by Steiner. As such, again, there is no motivation for an artisan to combine the two processes since it would require additional heating steps and since there is no expectation that the process of Steiner would be successful at lower temperatures.

Finally, also when read as a whole, Steiner continually discusses nickel-containing material. He identifies the material as "metal, metal alloy such as nickel-aluminum, or other nickel-containing material, or oxides thereof". (Col. 2, lines 31 – 34) They specifically state that the nickel-containing material is preferably nickel. (Col. 2, lines 47 – 49) There is no motivation to first pick nickel oxide from the nickel-containing materials provided by Steiner, to then decide to use activated carbon as the support for the chosen nickel-containing material of Steiner, to eliminate the desulfurization and decarbonization step of EP '997, to insert the heaters to heat the stream of EP '997 to the temperatures taught in Steiner, to insert the nickel oxide on activated carbon randomly chosen from the materials identified in Steiner, and to then look for a decarbonization step since the decarbonization step of EP '997 has been eliminated. Obviousness is not based upon what an artisan may do or might try, but is based upon what an artisan would be motivated to do with an expectation of success based upon the teachings of the references when read as a whole. Here, there is no motivation or expectation of success. Hence no *prima facie* case of obviousness has been established.

"Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, No. 04-1616 (CAFC March 22, 2006) citing *In re Lee*, 277 F.3d 1338, 1343-46 (Fed. Cir. 2002); and *In re Rouffett*, 149 F.3d 1350, 1355-59 (Fed. Cir. 1998). "When the [Examiner] does not explain the motivation, or the suggestion or

teaching, that would have led the skilled artisan at the time of the invention to the claimed combination as a whole, [it is] infer[ed] that the [Examiner] used hindsight to conclude that the invention was obvious.” *Id.* Since there is no motivation to combine Steiner with EP ‘997, no *prima facie* case of obviousness has been established. Applicants note that obviousness is not based upon what an artisan could do or what an artisan may try, but is based upon what an artisan would be motivated to do with an expectation of success, and as such respectfully request reconsideration and withdrawal of these rejections.

Specifically regarding claims 7 and 8, Applicants first note that as dependent claims to patentable claim 1, they are, by definition, allowable. It is first noted that while the Examiner alleges that it *appears* that the CO is essentially S-free, that is no basis in technical reasoning or fact to support an inherency argument that a modified EP ‘997 would result in the specifically claimed ranges of the present invention. No *prima facie* case of obviousness has been established. Reconsideration and withdrawal of this rejection are respectfully requested.

Allowable Claims


Claims 2 – 6 and 12 have been objected to as depending from a rejected base claim but as allowable if redrafted in independent form. Claims 2, 5, and 12 have been redrafted in independent form. Reconsideration and withdrawal of this rejection are hereby requested.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein are allowable to Applicants. Accordingly, reconsideration and withdrawal of the objection(s) and rejection(s) and allowance of the case are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 07-0893.

Respectfully submitted,

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